



Marine Institute
Foras na Mara

COUNCIL DIRECTIVE 2006/88/EC DISEASE INFORMATION LEAFLET

KOI HERPESVIRUS DISEASE

BACKGROUND

- Koi herpesvirus disease (KHV) is caused by koi herpesvirus (or cyprinid herpesvirus-3) a double stranded DNA virus of the family *Herpesviridae*. KHV is listed as a non-exotic disease under EU Directive 2006/88/EC and is notifiable in Ireland according to S.I. No. 261 of 2008.
- KHV was first reported in Israel and Germany and has since been reported throughout Europe, south-east Asia, South Africa and the USA.
- KHV has only been recorded in *Cyprinus carpio* varieties, including common carp and koi carp, affecting all age classes.
- Mortality levels can be as high as 80% with secondary infections (bacterial and/or parasitic) commonly observed in infected fish.
- Horizontal transmission through the shedding of the virus from infected fish plays an important role in disease outbreaks.
- The disease is temperature dependent occurring between 16 – 25°C. The virus is however, known to survive in fish at temperatures below 16°C.

CLINICAL SIGNS

- Fish gather at the water surface exhibiting gasping, disorientation and erratic swimming behaviour and mortality levels start to increase.
- An overproduction of mucus is very evident in the early stages of infection with KHV.
- Externally, the most obvious signs are seen in the gills which exhibit a pale colouration, haemorrhages and/or white necrotic patches.
- Gill, kidney and spleen are the organs in which KHV is most abundant during clinical infections.



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DIAGNOSIS

- Molecular detection of KHV is the most commonly used diagnostic method.
- Virus isolation from clinically infected fish using specific cell lines can also be used but this has been shown to be less sensitive than using molecular techniques.
- Histopathologically, the most consistent pathology is observed in the gills where necrotic cells and inflammation are observed.
- Diseased fish are often infected with ectoparasites on the skin and gills as well as bacterial species.

CONTROL

- Control of the disease should focus on avoiding exposure to the virus through effective hygiene and biosecurity measures.
- Biosecurity measures should include using fish from disease-free sources only and the use of a quarantine system for newly introduced stocks.
- Latent infections are an important factor in the spread of disease.
- Common carp hybrids (e.g. goldfish x common carp) are more resistant to the disease and may be used as an alternative. The possibility that the hybrids can carry and transmit the virus cannot be ruled out.
- Vaccination against KHV is not permitted in areas of the EU which have been declared disease free or which are participating in disease surveillance programmes.
- KHV is inactivated by UV irradiation and temperatures above 50°C. A range of disinfectants such as chlorine and iodophor based compounds are also effective.

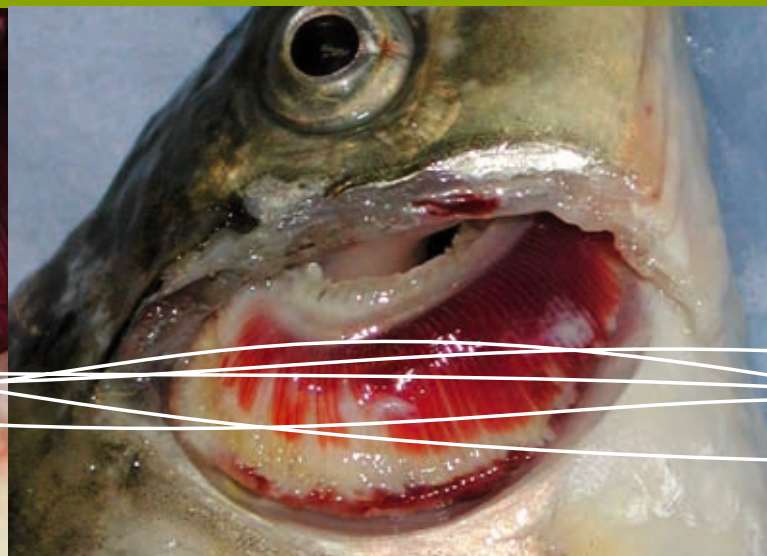
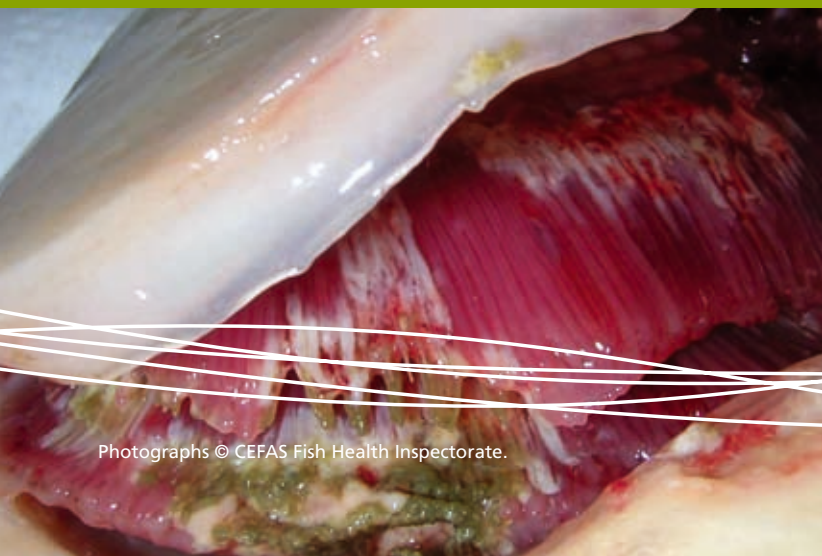
WHAT SHOULD I DO?

- The Marine Institute must be notified in the event of unexplained mortality or the suspicion of a notifiable disease.
- Strict biosecurity measures should be implemented at and around the infected site, in collaboration with the Marine Institute and the retained veterinary practitioner.
- No movements of aquatic animals, whether dead or alive, are allowed without the authorisation of the official service.
- The Marine Institute will confirm or rule out the presence of a listed disease.
- If the presence of the disease is confirmed, animals should be harvested/culled as soon as possible to avoid the spread of the disease.

AquaPlan (Grant-Aid Agreement No. PBA/AF/08/003[01]) is carried out under the Sea Change strategy with the support of the Marine Institute and the Marine Research Sub-Programme of the National Development Plan 2007-2013, co-financed under the European Regional Development Fund.



Ireland's EU Structural Funds
Programmes 2007 - 2013
Co-funded by the Irish Government
and the European Union



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